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EXAMINER	
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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/473,846
Filing Date: December 28, 1999
Appellant(s): OH, SEUNG-HWAN

Steve Cha
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For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 9/3/04.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences, which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is incorrect. A correct statement of the status of the claims is as follows:

The claims in the After Final Amendment received July 9, 2004 (referred to by Appellant as After Final sent June 29, 2004) have been substituted for the finally rejected claims.

(4) Status of Amendments After Final

The Appellant's statement of the status of amendments after final rejection contained in the brief is incorrect.

The amendment after final rejection filed on 5/4/04 has not been entered.

The amendment after final rejection filed on 7/9/04 has been entered.

The examiner did not receive this second Amendment After Final and therefore did not refuse to respond, since she was not given the opportunity to respond. Also, in said telephone

conversation, on August 12th, Examiner was asked if she had sent a second Advisory Action, which she had not since she had not received a second Amendment After Final.

However, since the After Final Amendment filed 7/09/04 only makes the changes as suggested by the examiner in the claim objections of Final Rejection (mailed 1/29/04) and does not change the scope of the claims, for purpose of appeal, the Amendment After Final-filed 7/9/04 can hereby be entered.

Therefore, the claims in Section B of the APPENDIX are the claims that form the subject matter of the present appeal.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The Appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

The rejection of claims 1, 2, 3 or 4 stand or fall together because Appellant's brief does not include reasons in support thereof. See 37 CFR 1.192(c)(7).

(8) Claims Appealed

The copy of the appealed claims contained in the section B of the APPENDIX to the brief is correct.

Disregard copy of claims contained in section A of the APPENDIX.

(9) Prior Art of Record

5,999,538	*HADDOCK ET AL.*	*12-1999*
5,493,562	*LO*	*2-1996*
6,295,281	*ITKOWSKY*	*9-2001*

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Haddock et al. (5,999,538). This rejection is set forth in a prior Office Action, mailed on 1/29/04.

As in claim 1, Haddock discloses a method for processing a packet exceeding a predetermined size (since no predetermined size is specified, the examiner asserts a

predetermined size of 1 byte) received from a physical layer by a MAC layer of an Ethernet to be transmitted to a switch, the method comprising the steps of:

Receiving a packet from the physical layer and transmitting the received packet to a switch (column 1: lines 39-44 and column 6: lines 28-30) (In an Ethernet, packets are received by the MAC layer of a node from a physical layer. Also, packets are constantly sent from node to node; node being a general term including switches.);

Detecting for an error while transmitting the packet (column 6: lines 28-30 and lines 49-58) (The CSMA/CD protocol (IEEE 802.3 standard), on which Haddock's invention relies (column 4: lines 32-38), occurs on the MAC layer. The MAC layer's functionality is built into the network adapter. When a node is transmitting a packet, it listens for a carrier signal. A carrier signal indicates that another node is transmitting. If a carrier signal is sensed, while a node is transmitting, a collision has occurred. A collision is a transmission error.);

Upon detection of the error, stopping the transmission of the packet in which the error is detected to the switch without waiting for complete reception of the entire packet in which the error is detected (column 6: lines 49-58) (When the node detects a collision, it sends the jam signal for a period of time, however, the node then stops transmitting. When the MAC is transmitting to another node, it is receiving the packet from the Physical layer for transmission. If an error occurs while the MAC is transmitting and transmission is stopped, the entire packet will not be received from the Physical layer.); and

Transmitting a signal indicating an occurrence of the error and a signal indicating an end of the received packet to the switch (column 6: lines 36-38 and lines 49-58). (The jam signal is

sent for a period of time, immediately prior to the stopping of transmission, and indicates an occurrence of error and the end of the packet.)

Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being anticipated by AAPA in view of Lo (5,493,562).

Regarding claim 2, AAPA discloses an existing method for processing a packet exceeding a predetermined size (since no predetermined size is specified, the examiner asserts a predetermined size of 1 byte) received from a physical layer by a MAC layer of an Ethernet to be transmitted to a switch, wherein the received packet is stored in a memory for an eventual transmission to a switch (page 2, lines 5-6) (The MAC layer performing an error processing operation implies that data must be stored in memory. Since packets are generally made up of more than a single byte, a packet not exceeding a 64 bytes (page 2: line 16) is still considered exceeding the predetermined size of the asserted 1 byte.), the method comprising steps of:

Receiving a packet from the physical layer, storing the received packet in the memory, and transmitting the packet to the switch (This is in accordance with IEEE 802 standard relied upon in AAPA, page 2, lines 10-13);

Detecting for error while receiving the packet;

Upon detection of the error, stopping the storage of the packet in which the error is detected in the memory and the transmission of the packet in which the error is detected to the

switch without waiting for a complete reception of the packet in which the error is detected (page 2, lines 15-16). (For an error to occur while receiving a packet implies that something is detecting for error while receiving the packet. Discarding the error packet when an error occurs while receiving the packet implies the stopping of the storage and transmission of a packet upon detection of an error and transmitting the packet to the switch if the packet is not detected and therefore, discarded. It is implied by AAPA that in packets not exceeding 64 bytes, the storing is stopped without receiving the entire packet. "When an error occurs in the packet...while receiving the packet, the MAC layer will discard the error packet" (AAPA, page 2, lines 15) in conjunction with the following sentence's, "However...in a packet exceeding 64 bytes...the MAC layer will receive the entire packet." These two sentences with the, however conjunction, meaning in contrast to, makes it clear that in packets less than 64 bytes (that still exceed the examiner's asserted predetermined size) the storage of the packet is stopped upon the detection of error.));

However, AAPA does not specifically disclose transmitting signals, indicating an occurrence of the error or an end of the received packet, to the switch. Lo discloses a method, also in accordance with IEEE 802 standard, for processing packets that transmits both an error signal and an end-of-packet signal to a switch (column 4, lines 24-30).

It would have been obvious to a person skilled in the art at the time the invention was made to include transmitting error and end-of-packet signals into the packet processing method taught by AAPA above. It would have been obvious because Lo clearly teaches that gathering error statistics (by sending error and end-of packet signals to the switch) in a computer network is useful in network management because it enhances the user's ability to locate problems in the

network (column 1, lines 14-17). A person skilled in the art would have understood that good network management techniques would optimize the computer network.

Regarding claim 3, neither AAPA nor Lo specifically disclose the step of preparing to receive a next packet from the physical layer after receiving the packet in which the error is detected. However, it would have been obvious to a person skilled in the art at the time the invention was made to include this step in the packet processing method. This would have been obvious because it well known in the art that the Ethernet constantly processes packets and sending an end-of-packet signal is actually preparing the receiving end for the next packet. A person skilled in the art would have understood that after receiving the end-of-packet signal, the MAC layer would prepare to receive a next packet.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Lo as applied to claim 2 above, and further in view of Itkowsky et al (6,295,281).

Regarding claim 4, AAPA and Lo teach the method for processing a packet received by the MAC layer wherein the received packet is stored in a memory, above. However, neither specifically discloses the memory comprising a FIFO memory. Itkowsky discloses a Media Access controller with a FIFO memory (column 1: lines 59-61 and column 2: lines 29-34).

It would have been obvious to a person skilled in the art at the time the invention was made to store the received packet in a FIFO memory. It would have been obvious because Itkowsky discloses the prior art IEEE 802.3x standard requiring a large FIFO memory and an

improvement, which also stores received packets in a FIFO memory. A person skilled in the art would have known, especially according to the IEEE standard, that FIFO memories are very commonly used to store packets in Ethernets.

(11) Response to Argument

Regarding claim 1, Haddock discloses an apparatus that uses CSMA/CD MAC protocol in accordance with the IEEE 802.3 standard, to allow nodes to gain access to a network and send packets to other nodes. Haddock specifically states in column 6: lines 28-30 that a "node" includes a switching hub, router, etc. Also, it is well known that every terminal, computer, hub and switch is a node. Thus, a node using the CSMA/CD MAC protocol to transmit a packet to another node (node being a general term for a computer system that provides services over a LAN, including a switching hub) corresponds to "transmitting a packet to a switch."

In the CSMA/CD MAC protocol, a carrier signal indicates that another node is transmitting. If a node is transmitting and detects another carrier signal, that is an indication that more than one node is transmitting and a collision will occur. A collision is a transmission error. Therefore, a node checking for a carrier signal while transmitting is detecting for an error while transmitting.

Secondly, the CSMA/CD protocol occurs on the MAC layer of the Ethernet. As is well known, the MAC layer controls access to the physical transmission medium on a LAN and the MAC layer functionality is built into the network adapter. Therefore, where Appellant pointed in Haddock (column 1: lines 45-47) with the intention of showing the detecting is occurring on the

physical layer, is actually support that detecting for error is occurring on the MAC layer and not on the physical layer.

Next, the packet to be transmitted in Haddock is certainly received from the physical layer. The MAC layer transfers data to and from the Physical layer. When a packet is received by the MAC layer, it must come from the Physical layer.

In summary, a packet to be transmitted by a node to a switch (computer system that provides services over the LAN, which includes a switch) in the LAN of Haddock and generally packets to be transmitted in an Ethernet was received from the Physical layer. The CSMA/CD protocol, which is built into the functionality of the network adapter (the MAC layer) detects for a carrier signal while transmitting the packet. If a carrier signal is detected, an error has occurred (collision is a transmission error). The transmitting node sends a jam signal and then stops transmitting before the entire packet is sent. Jam signal indicates both that an error occurred and that it is the end of the packet (column 6: lines 50-58).

Most of Appellant's augments for claim 1, relate to points that are well known and are described in IEEE 802 standards. Most of the argued points are actually obscurely contradictory to well-established protocols on which Haddock's invention depends. For instance, Appellant alleged that since the detecting of Haddock is occurring by the network adapters that it is occurring on the physical layer. When in fact it is well known that the MAC layer functionality is built into the network adapters. Also, Appellant assumed that the packets received in Haddock

were received from an upper layer when, again, it is well know that the MAC layer sends and receives to and from the Physical layer.

For at least the above reasons, Haddock anticipated the invention as recited in claim 1.

Regarding claim 2, Appellant's invention, as is clearly summarized in Section V. of Appeal Brief, attempts to over come prior art methods in packets exceeding 64 bytes, to resemble the existing methods for packets smaller than 64 bytes. However, language used in the claims, is a "method for processing packets exceeding a predetermined size." The examiner has asserted a predetermined size of 1 byte, making the prior art method of error processing for packets smaller than 64 bytes, reading on the instant claims, since packets smaller than 64 bytes still exceed a predetermined size of 1 byte.

Further, as in AAPA in combination with relied upon IEEE 802 standards (page 2, lines 4-16) nodes generally send and receive packets to and from other network devices. The MAC layer governs access to the transmission medium in order to exchange data between nodes. The MAC layer is also responsible for error processing operations. If a packet to be transmitted is free from error, it is sent to another node. As stated above, "node" is a general term in the art and includes every terminal, computer, hub and switch. Therefore, transmitting to a node includes such scenario of transmitting to a switch. When packet is discarded due to an error, as recited in AAPA, it is not received completely or transmitted to the switch. Thus, the transmission of that packet is stopped.

When the MAC starts forwarding a packet before the entire packet is received, the receiving end needs an indication that the packet will no longer be transmitted. Therefore, an end-of-packet signal is desirable.

The Lo reference was solely brought in to demonstrate that gathering error statistics and sending an end-of-packet signal is known, desirable and beneficial in computer networks. Above is further explanation of the motivation to modify AAPA to transmit a signal indicating an end of the received packet to the switch.

Lo describes an apparatus and method for storing error statistics for data packets having error in a network such as that based on IEEE 802.3 standard. Lo specifically describes the method dispensing with a MAC of a multi-port repeater, but includes various alternatives and modifications (column 3: lines 16-19). Lo describes sending an error signal with an end-of-packet signal to show that statistics on the error status signal are valid (column 5: lines 35-40).

Lo also teaches the paramount importance of keeping a network running smoothly by monitoring data packet transmission on the network by identifying error conditions to enhance the user's ability to locate problems (column 1: lines 13-21). It is therefore an obvious modification of AAPA to send an end-of-packet and error signal to track error statistics in an 802 network.

The examiner believes there are no deficiencies in claim 2 and the memory comprising a FIFO buffer, as recited in claim 4, is certainly an obvious modification.

Therefore, for at least the above reasons, AAPA in view of Lo anticipated the invention as recited in claims 2, 3 and 4.

For the above reasons, it is believed that all of the rejections should be sustained.

Respectfully submitted,

ALD
November 9, 2004

Conferees
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